



# Arizona Department of Transportation

## STATE ENGINEER'S OFFICE

### MEMORANDUM

**To:** ITD Employees

**Date:** November 18, 2008

**From:** Sam Maroufkhani, Deputy State Engineer

A handwritten signature in black ink, appearing to read "Sam M.", is written over the printed name.

**Subject:** AS BUILT Procedure

Effective immediately, all ADOT Project Managers and Liaisons with other agencies, working on the State's Highway System, will implement the attached ADOT As Built Procedure.

The Project Development Process Manual and Dictionary of Standardized Work Task have been updated to reflect this procedure.

A new ITD ENG As Built policy is in process. Upon completion of the policy, you will be advised when the policy is available on the intranet website.

Your cooperation is appreciated to implement this procedure that will assure ADOT has ready access to all As Built plans they have commissioned.

**ARIZONA DEPARTMENT OF TRANSPORTATION**  
**INTERMODAL TRANSPORTATION DIVISION**  
**STATEWIDE PROJECT MANAGEMENT**  
**AS BUILT PROCEDURE**

**1. As Built Definition**

- 1.1 “As built plans are original full size plans that document the registered or certified professional’s final plans and that include all changes made to the plans in the actual project construction. As built plans include as constructed plans and record plans”. ARS §32-152, As built plans, *definition*.

The As built redlines record the changes occurring during construction and are incorporated onto the plans manually and/or electronically. The field redlines set and other miscellaneous documents will be provided by the district’s Resident Engineer.

**2. Purpose**

- 2.1 The purpose of this memorandum is to present the As Built procedure to ensure that all As Built plan documents for ADOT Highway projects received and/or produced by ADOT have the necessary information of the modification(s) made during construction and to document this As Built procedure as well as to ensure that the electronic files are received in timely manner from other agencies working next to the State’s Highway System to be stored for future use and/or to share with other stakeholders.

**3. Definitions**

- **Addendum:** is a revision to the contract made available to the bidders after advertisement for bids.
- **CADD Technician:** is the person, consultant or in-house, who creates electronic files that contain the drawings that represent elements of a Highway as directed by the Professional Engineer. This person uses Computer Aided Design Drafting (CADD) software such as Micro-Station, Inroads and other software to draw the details necessary and generate the project’s plans.
- **Change Order:** is a form of a Supplemental Agreement that occurs from unforeseen situations during construction where the designer is in need to modify the original design to maintain the

integrity of the affected element to meet the requirement for the new site condition; it includes its revisions.

- **Design Project Manager (PM):** is a person in charge of the design and/or post design services of a project who initiates and evaluates the RE request from the design side of the project to ensure that the transferred changes requested by the RE are recorded in the As Built plans.
- **Electronic Design Files:** are electronic files created using Computer Aided Design Drafting software such as Micro-Station, Inroads and other similar software.
- **Liaison:** is an employee who represents ADOT in projects initiated by private entities, cities or counties.
- **Record Drawing Coordinator / Statewide Project Management Specialist:** is an ADOT employee who oversees the As Built procedure and verifies the content of the deliverables to the Agency.
- **Redline Changes:** are minor modifications that are not dealt with by a Supplemental Agreement.
- **Registered Professional Engineer (PE):** is a person, ADOT or Non-ADOT, who has been granted registration by the Arizona State Board of Registration and authorized to practice professionally in the State of Arizona. This individual is usually a member of the design team who is in charge of developing the details for a project which are transferred to the project's plans by the CADD technician.
- **Resident Engineer (RE):** is a person (consultant or in-house) in charge of the construction of a project who initiates the changes in the field.
- **Supplemental Agreement:** is a signed written agreement between the ADOT and the contractor covering changes of work not otherwise provided for in the contract such as revisions in or amendments to the terms of the contract.

#### **4. Requirements for Archiving As Built Plans**

**4.1** The following deliverables are required of anyone submitting As Built plans and the respective electronic files for archiving as defined in this procedure.

4.1.1. The original set containing the field redlines sent by the construction office.

4.1.2. One half size (11" x 17") set of the prepared As Built plans for the Resident Engineer's approval prior to requisites 3 to 5 below.

4.1.3. One (1) half-size (11" by 17") print of the final prepared, sealed and signed, As Built

plans set.

4.1.4. One (1) full-size print set of the sealed and signed sheets trimmed to 22" x 34".

4.1.5. Two (2) electronic copies containing the created sealed and signed As Built Plans scanned onto CD(s) or DVD(s) in PDF format (Adobe Portable Document Format).

## **5. Required Information to be Placed in the As Built Plans' Cover Sheet**

5.1 The cover sheet of each As Built Plan set shall contain the following information transcribed onto the original cover sheet:

- Project Number and Tracs number (if applicable).
- Name of the Construction Company who built the project.
- The name of the Professional Registered Engineer or Certified Professional who oversaw the As Built Plans Procedure.
- The date the process was completed.
- The name of the Resident Engineer (and consulting firm if applicable) who supervised the project field construction.
- The date when the Resident Engineer approved submittal of the field redline information.

Note: Electronic construction forms containing the above required information will be available upon request to all entities outside ADOT.

## **6. Procedure to Prepare the As Built Plans Documents**

- 6.1 The Resident Engineer sends the plans containing the field redline changes, imprinted either by hand or in electronic version to the design Professional Engineer (consultant or in-house) along with the filled out and signed "Field Redlines Construction Org. Information" form. In addition, the Resident Engineer will send the prepared As Built Preparation Estimate form to the ADOT design PM.
- 6.2 The CADD technician will electronically transfer all field redline changes to a PDF format copy of the As Bid plan sheets, utilizing Micro-Station or Adobe Professional.
- 6.3 Plan changes initiated by supplemental agreements shall be incorporated into the plans at the appropriate location as additional sheets and shall have an alpha designation, such as sheet 32A, 32B, etc. The original plan sheet that has been changed shall have an "X" drawn across the sheet and shall be retained in the package.

- 6.4 Plan sheets accompanying addenda shall replace the original sheets. The original sheets shall NOT be retained in the package.
- 6.5 Upon completion of the CADD technician's work, the design Professional Engineer shall check the completed As Built Plans and/or electronic design files to verify that all redline changes have been transcribed accurately and that the correct ADOT As Built Plans procedure has been followed. Any changes or omissions discovered while checking shall be corrected prior to returning the plan sheets to ADOT for As Built purposes.
- 6.6 The registered Professional Engineer or certified professional shall also check the list of change orders to ensure that all pages with its respective changes affecting those plans have been noted and/or included in the As Built Drawing package.
- 6.7 The registered Professional Engineer or certified professional shall then sign the information form stated above in the "Required Information to be placed in the cover sheet" to be included in the package of the new plan sheets containing the transferred redlines.
- 6.8 Upon completion of the new As Built Plans for a project, in accordance with the above requirements, one set of half-size plans along with the redlines shall be submitted for review to the ADOT Resident Engineer within 60 calendar days (or as specified in the contract) after receiving the redlines from the Resident Engineer.
- 6.9 Upon approval from the Resident Engineer (estimated 5 days), the Resident Engineer shall send the half-size set of the final approved As Built plans to the Statewide Project Management Specialist (Record Drawing Coordinator) and notify the ADOT design PM of his approval. The final complete deliverables shall then be submitted by the Consultant or design Engineer to the ADOT design PM or ADOT Liaison who will forward them to the ADOT Record Drawing Coordinator for a conformance check and acceptance. The ADOT PM or ADOT Liaison may arrange for the required As Built sets to be delivered directly to the ADOT's Record Drawing Coordinator. Electronic file names shall conform to the format provided by the ADOT Statewide Project Management Specialist.
- 6.10 Upon final acceptance, the Statewide Project Management Specialist (Record Drawing Coordinator) will store the files in the ADOT Information Data Warehouse (AIDW) and submit one (1) set in PDF format, one (1) full size plan set (22" x 34") and one (1) half size (11" x 17") set of the As Built plans to ADOT Engineering Records for the purpose of archiving in accordance with Arizona Statute (ARS §41-1348).